Research Overrun of Photo-Magnetic Propulsion System Also Allows Magnetism in Form of Soliton Waves Able to Cut Through Atmospheric Turbulence to Carry Data for Substantially Improved SATCOM

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Introduction

A long-term goal of satellite communications engineering has been to find a way to overcome the limits of the low-bandwidth microwave communications of current-era satellite Internet. Higher bandwidths are possible with the use of optical frequencies, but IR light is inevitably corrupted by atmospheric turbulence. Anyone claiming to be able to compensate for atmospheric turbulence when it comes to high-bandwidth SATCOM is deceiving you sc. (https://www.sciencedaily.com/releases/2022/12/221220113019.htm)

Rather than using low-frequency EM or messing around with easily-scattered IR, I propose that SATCOM may be revolutionized by borrowing a still quite novel technique from what I call a photo-magnetic propulsion mechanism.

That mechanism works by first uniforming the polarity of laser light using an eENZ material and then passing that polarized light exactly through the meridian of a series of glass nanospheres. Alignment is critical with this. When light passes through a nanosphere of glass, the properties of the glass transform the electrons into a flat wall known as a soliton wave. For all intents and purposes, these walls are essentially pure magnetism. With no property of phase, such waves would not be subject to atmospheric scattering.

Thus, if we take our propulsion system which includes a series copper plates for the soliton waves to push against to provide thrust and simply remove the plates and replace them with magnetometers, we are left with a communication device that sends and receives data in the form of focused magnetism over great distances. To provide kinetic propulsion, we want our emitters close to the object they're propelling, but for sending data, the soliton waves would only need to be strong enough to be detected by a magnetometer.

If a traditional soliton emitter is like a flashlight, then this system is more like a soliton "LASER." Whereas external magnets have traditionally been used to convert standard EM into soliton form, the glass nanosphere approach forces the electrons making up that EM to self-assemble into the desired configuration. Any single-polarity beam striking such a sphere, provided it does so with precision, will be transformed into walls of magnetism that continue to move in the direction in which they were moving prior to striking the sphere. Thus, to deliver data photo-magnetically, precision is required both in targeting the polarized light vis a vis the glass sphere(s) and in setting the orientation of the array as a whole since, like most LASERs, they must be carefully aimed as their light (or in this case, magnetism) is finely focused.

Conclusion

As this configuration of electrons is not distorted by atmospheric turbulence and yet has bandwidth comparable to traditional optical communication systems, it makes an ideal candidate to form the basis of a next-generation SATCOM network.

Note: This publication is outmoded by the publication of 19 October 2023 in which a viable means of generating helical electromagnetism which is resistant to scattering was prescribed. For authenticity, I decided to leave in the line, “Anyone claiming to be able to compensate for atmospheric turbulence when it comes to high-bandwidth SATCOM is deceiving you.” While the ScienceDaily article authors may have been in error or may have been deceptive, the concept of overcoming atmospheric scattering with EM (if in an unconventional form) was clearly much more plausible than even I thought in 2022.

Note 2: Curved, focused magnetism can be used to convey data through a long-range inductive process as explained in 30 July 2024.